# POLYTECHNIC OF NAMIBIA

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## SCHOOL OF ENGINEERING AND INFORMATION TECHNOLOGY

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## MATHEMATICS & STATISTICS DEPT


## COURSE OUTLINE

**COURSE NAME** : Basic Business Statistics 1A
**COURSE CODE** : BBS111S
**PRE-REQUISITE** : Introduction to Mathematics (ITM 111S)
**DURATION AND CONTACT HOURS** : Four (4) Contact hours per week, for 15 weeks
**COURSE LECTURERS' DETAILS** : (Below)

| Lecturer | Office number | Telephone | Email address |
|---|---|---|---|
| Mapira, C | T.B.A | T.B.A | cmapira@polytechnic.edu.na |
| Roux, A.J | Rm 407, Blue Level, Lecture Building | (061) 207 2166 | aroux@polytechnic.edu.na |

**SHORT COURSE DESCRIPTION:**
This course is aimed at students of management who need to have a good knowledge of Statistics for Management Decision Making. The introductory chapters deal with the properties of raw data for statistical analysis as well as introducing a number of graphical techniques of displaying statistical findings. Probability distributions and Sampling techniques are also covered.

**COURSE LEARNING OUTCOMES:**
By the end of the course, the student should be able to

- Understand and use the various statistical tools and methods in the collection, processing and summarizing of data for decision making purposes in their fields of specialization.
- Demonstrate practical orientation to statistics and probability
- Model marketing and business related problems on the basis of available data
- Apply the skills provided to practical real life marketing, business and public management problems.

**ASSESSMENT STRATEGIES:**
The assessment will be based on continuous evaluation and end of semester examination. The continuous evaluation is made up of class tests and assignments. These will contribute 40% to the final assessment. The end of semester examination is one three-hour paper. The examination will contribute 60% towards the final assessment.

**SPECIAL RULES APPLICABLE TO THIS COURSE:**

1 Two class tests/assignments will be written during the course of the semester. At the end of the semester, continuous assessment marks will contribute 40% to the final evaluation mark. **A candidate scores a zero in a test or assignment not done on schedule.** (See 2 below)

2 A special test or assignment may be arranged for a candidate who, for good reason supported with documentary evidence, missed a class test or assignment. No candidate will be allowed more than one (1) special test or assignment.

3 To gain entry to the semester examination, a candidate must have obtained a continuous assessment average of NOT less than 50%.

4 The semester examination will consist of one three-hour written paper. This will contribute 60% to the final evaluation mark.

5 The pass mark for the course is 50% with a sub-minimum of 40% in the semester examination.

6 A candidate can qualify for further supplementary examinations if her semester marks is above or equal to 50%. (See the Prospectus in this regard).

7 Class tests will be written on the exact dates as will be announced at least one week in advance by the lecturer(s) concerned.

8 Test dates are ***tentatively*** fixed as follows:

**Test 1** : **2nd April 2010**
**Test 2** : **7 May 20010**
**Test 3 (Special Test)** : **14 May 20010**

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**SYLLABUS CONTENT: (Expanded)**

1. Mathematical background. (Review only) [Week1]
   - Summation Notation.
   - Factorial notation.
   - Inequality signs.
   - Exponents
   - The calculator

2. Introduction to Statistics [Week 1]
   - 2.1 The role of Statistics in Business, Government, and in other areas.
   - 2.2 Key Statistical concepts.
     - Population versus Sample.
     - Descriptive versus inferential Statistics.
     - Sampling versus Census.

3. Data: [week 2]
   - 3.1 Data sets and Types of Data
   - 3.2 Data Sources
   - 3.3 Data Collection Methods.
   - 3.4 Experimental and non-experimental Studies
   - 3.5 Errors in Data

4. Graphical Description of Data [Weeks 2-3]
   - 4.1 Charts.
     - Pie charts
     - Bar Charts.
     - Stacked bar chart (optional).
     - Multiple bar charts (optional).
   - 4.2 Frequency distributions
     - Histograms
     - Frequency Polygon.
     - Ogives,
     - Stem and Leaf displays.
   - 4.3 Line Graphs.

5. Numerical Descriptive Summary Measures of Data [Week 4-6]
   - 5.1 Measures of Central Tendency
     - Mean Median and Mode.
   - 5.2 Measures of Variability
     - Range, interquartile range, quartile deviation, standard deviation & variance, coefficient of variation.
   - 5.3 Measures of Relative Standing & the Box Plot
     - Percentiles
     - Box Plot (Optional).

**Test 1**

6. Probability
   - 6.1 Events, Random Trials (Experiments), Sample Spaces [Week 7-8]
   - 6.2 Basic Axioms of Probability
   - 6.3 Sample Spaces and Events: The Venn Diagram
   - 6.4 The Law of Total Probability & Baye's Theorem

7. Introduction to Random Variables [Weeks 9-10]
   - 7.1 Concepts and Definitions
   - 7.2 Discrete Random Variables
   - 7.3 Numerical Characteristics of Discrete Random Variables
   - 7.4 Standardized Random Variables
   - 7.5 Continuous Random Variables
   - 7.6 Numerical Characteristics of Continuous Random Variables

**Test 2**

8. Special Probability Distribution [Weeks 11-13]
   - 8.1 Bernoulli Probability Distribution
   - 8.2 Binomial Probability Distribution (including normal approximation to binomial)
   - 8.3 Poisson Probability Distribution
   - 8.4 Normal Distribution
   - 8.5 Standardized Normal Distribution.

**Test 3**

9. Revision [Weeks 14-15]

***Reading list:***

**Prescribed Textbook:**

**Prescribed Textbook**

**Applied Business Statistics; Methods and Applications**
Trevor Wegner
Juta & Co., LTD, 1993 (or more recent edition)
ISBN 0-7021-2873-2

**Recommended Textbooks**

STATISTICS for Management and Economics

By G. Keller & B. Warrack
Thomson Brook/Cole
ISBN 0-534-39186-9